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ABSTRACT

This paper describes the life and achievements of businessman, philanthropist, and photographic innovator, George Eastman. Aspects of multiple intelligences theory with regard to Eastman's life are discussed. The paper details Eastman's many and varied successes after a poor childhood and notes that, although he left school at 13 to help support his family, he donated millions to educational institutions such as the University of Rochester, Massachusetts Institute of Technology, Tuskegee Institute, and Hampton Institute. (BT)

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Biography of George Eastman:
A Multiple Intelligences Profile

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Abstract

This paper describes the life and achievements of businessman, philanthropist and photographic innovator, George Eastman, and discusses aspects of multiple intelligences theory with regard to Eastman's life.

In the time it takes to read this paper, thousands of photographs will be taken worldwide. Few, if any, of the people snapping those pictures will think of George Eastman, the man who revolutionized photography and brought it into the realm of everyday experience. Eastman displayed strong logical-mathematical, spatial, and bodily-kinesthetic intelligences with his inventions, and combined these with aspects of personal intelligences in his remarkable business intuition.

George Eastman was born into a modest household in Waterville, New York on July 14, 1854. He was the youngest child of George Washington Eastman and Maria Kilbourn Eastman. George had two older sisters, Emma Kate and Ellen Maria (Ackerman, 1930).

George's father was the founder of Eastman Commercial College, located in Rochester, NY. The Commercial College was the first training school in the country to include business transactions in its course offerings. Eastman's college thrived and soon was highly regarded throughout Upstate New York. At the age of 6, George and his family moved from Waterville to Rochester to reduce the distance of his father's daily commute (Ackerman, 1930; Coe, 1973; Compton's NewMedia, 1994; Jenkins, 1975).

Little is written about George's mother Maria, or his two sisters. It is noted in one reference that sister Emma was crippled with polio during her childhood. Emma was schooled at home by her mother during the icy Rochester winters (Mitchell, 1986).

The Eastmans invested heavily in the business college, but two years after moving to Rochester, George's father died suddenly, leaving the family with little means to survive. After the death of his father, George's mother, Maria, took in boarders to help pay the bills (Ackerman, 1930; Coe, 1973). The family then began a struggle which instilled in George an intense fear of debt and poverty, and an obsession with the health of his mother (WHEC, 1980).

George was a resourceful and inventive child. He liked to make things with his hands, and designed wire puzzles from items such as his mother's knitting needles. He sold some of these puzzles to schoolmates and brought the nickels and dimes home to give to his mother (Mitchell, 1986).

When George was a little older, he contributed to the family's finances by cutting walnut bookshelf brackets in a "filigree design" (Ackerman, 1930). He opened his first bank account with $5, proceeds from the bracket sales. On his seventeenth birthday, his mother presented him with a toolkit and workbench, a hobby which he pursued in his spare time (Coe, 1973).

Perhaps influenced by his father's interest in business accounting and bookkeeping, George was a meticulous master of organization. At the age of 13, he left school for a job as a messenger boy at an insurance company (Ackerman, 1930; Coe, 1973; Compton's NewMedia, 1994). He was paid $3 per week, and he started his first "Cash a/c" book in which he recorded all receipts and expenditures each month, and kept an annual inventory. Much of what is known about George's early life is recorded in those detailed accountings. All of his early jobs were in the insurance industry and banking (Ackerman, 1930; Coe, 1973). He seemed at home in the world of business and finance.

Interest in photography is first noted in his accounts books at the age of 14. He took his mother to a lecture, and afterward had two photographs taken of himself. He gave one photo to his mother, and the other to his Sunday school teacher (Ackerman, 1930; Mitchell, 1986).

When he was 23, he took a more practical interest in photography. He arranged to take lessons in wet plate processing from a local photographer, George Monroe, who would later work for Eastman (Jenkins, 1975). He spent $49 for a basic photographic outfit (Coe, 1973).

Photography in the 1870's was a cumbersome venture, requiring heavy equipment and corrosive chemistry. Photographs were made with glass plates treated with a chemical coating. The coating was sensitized to light with a nitrate bath, and while still wet, the plate was exposed in the camera. The picture had to be developed immediately, before the coating dried (Ackerman, 1930; Coe, 1973; Jenkins, 1975; Mitchell, 1986).

George's first photographic outfit consisted only of the essentials. It included, "a camera, about the size of a soap box, a tripod which was strong and heavy enough to support a bungalow, a big plateholder, a dark-tent, a nitrate bath, and a container for water" (Ackerman, 1930; Coe, 1973). In addition to these items, he had to carry a box of glass plates, processing trays, bottles of chemicals, stirring rods, and measuring glasses (Mitchell, 1986).

In spite of the bulky equipment necessary for "in-the-field" photography, George became absorbed in his hobby and went out taking photographs whenever he could (Coe, 1973; Mitchell, 1986). He learned French and German so that he might read everything that was written on the subject (Coe, 1973; Jenkins, 1975). He had no idea of entering the business of

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photography at that time, however, as he had no studio and the bulk of the paraphernalia concerned him (Coe, 1973).

In the course of his reading, he found an article describing a method for making dry plate emulsions. Using dry plates meant less equipment to carry into the field, and the option of developing the plates at a later time. He experimented with coatings, often working all night. Eventually he arrived at a successful formula for his own dry emulsion coating, and began to consider the possibility of selling the plates (Ackerman, 1930; Coe, 1973; Jenkins, 1975).

Although turned down by his uncle Horace Eastman for financial backing, George persisted with his dry plate interests (Ackerman, 1930; Coe, 1973). After seemingly endless experiments, by 1879 he was making "entirely successful" plates (Ackerman, 1930). He disliked the need to coat plates by hand, and devised a machine that would apply a thin, even coating of emulsion to the glass (Ackerman, 1930; Coe, 1973; Jenkins, 1975).

Colonel Henry A. Strong, one of the Eastman's boarders and a local, highly successful buggywhip manufacturer, had more faith in the 26-year-old photographer than did Uncle Horace. George earned the respect, warm personal affection and financial participation of the fatherly Strong, who, in 1881, became his business partner. Strong put up $1000 to finance the opening of the Eastman Dry Plate Company (Jenkins, 1975). The Dry Plate Company was a success, turning out 4,000 plates a month by November of that year (Ackerman, 1930).

George was not satisfied, however, and was determined to make photography simpler so that more people could enjoy it—and purchase his products. He began another long series of experiments, and by 1885 he produced a new kind of photographic material, in which paper was coated instead of glass. The narrow strips of emulsion-coated paper was the first film in photographic history (Ackerman, 1930; Coe, 1973; Mitchell, 1986). With the help of William Walker, a camera manufacturer who joined the company in 1884, he designed a rollholder which allowed his film to be used on a standard plate camera (Jenkins, 1975).

Field photographers were quick to change from glass plates to the coated paper strips. However, the new film was a limited success, as studio-portrait photographers made up the bulk of the professional photographic business, and they were reluctant to give up the aura of mystery associated with using glass plates (Coe, 1973; Jenkins, 1975).

George realized that if he couldn't convince the studio photographers to change to his film, he needed to make his product accessible to a different group of customers. This was where his genius was revealed. The vast majority of the population had never taken a photograph due to

the complicated nature of the process. Yet it was to this large untapped potential that he turned to make what would become an immense fortune. The refusal of professional photographers to accept his new invention led to the circumvention of those professionals and the creation of a vast new market (Ackerman, 1930; Coe, 1973; Jenkins, 1975).

His next invention came 3 years later, in 1888. It was a little box-shaped camera which could be held in the hands instead of needing the support of a tripod. George called the camera Kodak. The name had no real meaning, but like everything else he did it was created with a purpose. The name was intended to be easy to remember, difficult to misspell, easily pronounced in numerous languages, and most importantly, to be a distinctive and unique trademark (Ackerman, 1930; Coe, 1973).

Kodak cameras were easy enough for anyone to use. The new camera came pre-loaded with film. All one had to do was press a button and then pull a cord to wind the shutter. After the film was shot, the camera was sent back to the company. For $10, the film was developed, the pictures were printed, and the camera was returned to the customer reloaded with film, ready to be used again (Ackerman, 1930; Compton's NewMedia, 1994; Mitchell, 1986).

The Eastman Company was incorporated as Eastman Kodak in 1889, and quickly grew to become a leader in the photographic industry. Kodak was the first manufacturer in the United States known to formulate and put into practice large-scale production at low costs for a world market (Jenkins, 1975). Production was backed by the first full-time research chemists and engineers (Ackerman, 1930).

Competitors called George "Julius Caesar," referring to his monopolistic vision for Kodak. He wanted to control his products from conception through production, and often purchased companies to reduce competition. In 1921, Kodak was determined to hold a monopoly on the photographic market and was ordered to sell subsidiaries, to stop acquiring competitors and to revise its merchandising practices (WHEC, 1980).

George was disliked by his competitors for his aggressive business maneuvers, but he was loyal and fair to his own employees. He believed that "an organization cannot be sound unless the spirit is sound" (WHEC, 1980). His labor strategy depended upon satisfied workers, or at least the impression that they were satisfied. He was a pioneer in employee relations and never hesitated to back his ideas with action and money. Kodak was the first to initiate monetary rewards for employee suggestions, as well as a bonus program based on yearly production (Ackerman, 1930). When an employee lost a hand in an industrial accident, Kodak's

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accident and benefit program began, as well as the first safety committee to investigate and prevent worker's injuries (WHEC, 1980). He also started Eastman Savings and Loan to encourage employee thrift (Ackerman, 1930).

His linguistic skills were put to use in his early innovations in the field of public relations and Kodak became a pioneer in mass advertising and world marketing (WHEC, 1980). When the first Kodak camera was produced, an advertising writer was commissioned to design the manual, but Eastman was not satisfied with the results and rewrote it himself (Jenkins, 1975).

As Kodak grew and prospered, George began to accumulate considerable wealth. He purchased several houses in Rochester, but the house he used as his home was built in 1905 by architect Jay Foster Warner at 900 East Avenue. George was the real designer of the mansion, incorporating details from houses seen around the world on his frequent business trips. He built it for his mother, saying, "all I ever wanted was to get enough money for her." She died two years after the house was built (WHEC, 1980).

Business associates remarked that the house was a reflection of the owner: cold and distant. Eastman was noted for being socially reserved, and was seen by many as austere and calculating. He was afraid of his competitors, uneasy with people in general, and feared being thought of as ignorant (WHEC, 1980).

He did, however, possess a keen ability to assess other people and their talents, and to use them to complement his own strengths. Despite his lack of social confidence, he attracted talented people and was able to draw enormously creative achievement from them (Ackerman, 1930). Eastman would not change his position once he approved of a decision, but in matters in which he felt his knowledge was limited, he welcomed suggestions and was surprisingly open-minded (Coe, 1973).

Associates remarked that Eastman was kind and considerate in his personal relationships and it was easy to feel comfortable around him. It did not take long to acquire great respect, as well as affection and loyalty toward him (Coe, 1973).

Despite his kind nature, George never married and was teased by friends and business associates for his celibacy. Rochester society gossiped about his bachelor status, but according to his secretary, there were no known scandals, and he did not care to be married (WHEC, 1980).

He found it difficult to relate to strangers, but he did have a genuine interest in the welfare of his employees and his community. He believed, "a rich man should be given credit for the judgment he uses distributing his wealth, not in the amount he gives away " (WHEC, 1980).

In his lifetime, George donated somewhere between $70 to $100 million (Ackerman, 1930; Coe, 1973; Compton's NewMedia, 1994; WHEC, 1980). He was cautious in his contributions, and often donated funds anonymously, wishing to avoid "the notoriety of big giving" (WHEC, 1980). He contributed to schools such as the Massachusetts Institute of Technology and the University of Rochester (Ackerman, 1930; Coe, 1973; WHEC, 1980). He gave to the Hampton and Tuskegee Institutes, believing that "the only hope of the Negro race and the settlement of [the race problem] is through proper education" (Ackerman, 1930; Coe, 1973).

Recalling his own toothaches in childhood, he funded affordable dental clinics in Rochester, London, Paris, Rome, Stockholm, and Brussels (Ackerman, 1930; Coe, 1973; Mitchell, 1986; WHEC, 1980). (These were locations where Kodak built its plants.) Characteristic of his forethought, he insisted the clinics be built within easy access to public transportation (Mitchell, 1986), for what good would they be if patients couldn't get to them?

George financed the Eastman Theatre and Eastman School of Music, as well as the Eastman-Rochester Symphony Orchestra (Ackerman, 1930; Coe, 1973; WHEC, 1980). His own lessons with the flute at age 20 were unsuccessful, being unable to produce a recognizable tune after two years of steady practice (Ackerman, 1930; Coe, 1973; Mitchell, 1986). However, this did not diminish his appreciation for music, and his philanthropy reflected his concern that the community at all levels should have the opportunity to enjoy these arts (Ackerman, 1930; Coe, 1973).

Perhaps as compensation for his own inabilities, and an indication of the importance he afforded it, he surrounded himself with music whenever possible. He invited string quartets from the Eastman School of Music to perform for his Sunday dinner guests each week, and he awoke each morning to his pipe organ being played by his own personal organist (Ackerman, 1930; WHEC, 1980).

After World War I, Kodak was managed by George's carefully hand-picked men. He slowly took himself away from the running of the company and began to travel extensively (Ackerman, 1930; Coe, 1973). It was then that he was able to take time to enjoy the outdoors: riding horses, shooting skeet, and always photographing accompanying guests. He took frequent trips to his retreat in North Carolina, and to the western United States and Alaska (Ackerman, 1930; Coe, 1973; Mitchell, 1986; WHEC, 1980). He was an avid big game hunter, and took safaris to Africa to obtain specimens for the American Museum of Natural History (Coe, 1973). On these trips he left behind his role as businessman and became the outdoorsman, often

taking over the cooking chores for the party. His camping retreats were well supplied, and his trail cooking was noted for its gourmet flair (Ackerman, 1930; Coe, 1973; Mitchell, 1986).

In 1931, at the age of 77, his health was failing due to a progressive hardening of the arteries near his spine, and he was forced to cut back on his physical and social activities. His lifelong friend and business associate, Walter Hubbell died in early 1932 from a long, lingering illness. Eastman feared the loss of control over his life that such a condition would bring, and in March 1932, just a few weeks after Hubbell's death, he called his friends together to witness changes to his will (Coe, 1973). After his friends left for the evening, he wrote a note saying, "To my friends: My work is done. Why wait?" George retired to a second floor bathroom, tidily laid out towels around him, and shot himself through the heart (Coe, 1973; WHEC, 1980) in a suicide as carefully controlled and organized as his life had been.

Discussion

George's most notable intelligences were logical-mathematical, spatial, and bodily-kinesthetic. At an early age, he designed visual puzzles from odds and ends around the house, and his resourcefulness in selling these puzzles was a precursor to his successful business career.

His compulsiveness in bookkeeping may have been influenced by his father's Commercial College, but he also had a natural intelligence and desire for working with numbers. The success of his photographic business is testimony to his keen business sense, as well as to his inventive creativity.

Eastman's inventive peers included Thomas Edison and Alexander Bell. Each possessed proficiencies which distinguished him, and for Eastman, his was an acute intuition for business opportunities. In fact, George Eastman worked with Edison in developing the motion picture industry, and it was Eastman who was primarily responsible for Edison's commercial success (Ackerman, 1930).

Although George started as an independent inventor, experimenting in his spare time while working as a bookkeeper at a local bank, his creative ability rapidly proved his type as more than independent. The invention of film and the Kodak camera revolutionized the photographic industry and made cameras and photographs into the commonplace items which we take for granted today. His innovations in photography created a new industry, and with it, new professions, new policies, new publications, and new channels of communication and

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understanding. The changes brought about by George Eastman's inventions certainly evidences his classification as a "basic inventor" who created truly radical new things.

When he became involved with a problem, he internalized the importance of creating a solution, and he worked to solve it because he firmly believed the answer was important, regardless of any support, or lack of support, around him. In fact, lack of support can make an inventor like Eastman even more determined to find an answer, if only to prove to himself that the answer is, indeed, worth finding.

Simonton's "orphanhood effect" is noted as a curious and somewhat common trait among creative people (Piirto, 1992). George was 8 when his father died, and this event marked the beginning of difficult financial circumstances for his family. Little is recorded about George's family relationships, and the lack of comments regarding it implies that his family support was not unusual. The poverty they experienced after the father's death did seem to profoundly influence George, although his early desire to assist the family's finances indicates that his determination and independence were already well developed by age 8 (Ackerman, 1930; Mitchell, 1986).

George left formal schooling at age 13 to help support his family, but it is not clear whether his mother continued his education at home at that time. It is obvious that he continued educating himself throughout his life, for when he determined a goal, he did not hesitate to acquire whatever skills were necessary to achieve it. It is difficult to assess the impact of his withdrawal from school, as it was a far different situation to leave a formal education in the 1860s than it would be to do so in the 1990s. It is clear, however, from his own pursuits and from his philanthropy that he believed education was basic to solving the world's problems. It is perhaps not unusual for very internally motivated people to assume responsibility for their own knowledge, and to take this initiative for granted.

Although insecure about his lack of formal education, Eastman learned very early in life its most important concept: how to learn on his own. When he wanted to make emulsions, he sought out information on chemistry, and he learned it. When he wanted to read journals published in France and Germany, he studied the languages that would allow him access to those articles. He never hesitated to commit an idea into action due to lack of knowledge (WHEC, 1980), and unlike many people, it seemed never to occur to him that simply not knowing about a topic was an obstacle.

Independent learning is a concept that many students are never taught until they reach graduate school, and unless they are unusually independent in other ways, many never learn it at all. It is not only an attitude but a tool that one must acquire to succeed in nearly any field. It is a concept which should be introduced into the curriculum as early as possible; not in graduate school, but in grade school.

Eastman's motivation and determination were consistent with Simonton's belief that all creative scientists are devoted to work, and highly internally motivated (Piirto, 1992). During his early involvement with photography, George worked all day at a bank, then spent most or all of the night experimenting with emulsion formulas, and caught up partially on his sleep only on weekends. Even when he still considered photography only a hobby, George often found himself in a state of flow, working long hours without realizing how much time had passed. As he stated, "being an amateur photographer was, I suppose, arduous work, but one never finds a hobby hard riding..." (Coe, 1973).

Colangelo's study of inventiveness (Piirto, 1992) showed several patterns common to inventors, many of which are not supported by George Eastman's history. Eight commonly shared patterns were noted in the study. The first indicates a happy childhood, which can probably be said of George prior to his father's death. After that event, it seems that while the family was still basically intact and perhaps emotionally close, times were very difficult and the childhood became stressful and uncomfortable.

Although Colangelo believes strong religious ties and conservatism are common to inventors, this was not true of George Eastman. He was not obviously conservative in any area, and his progressive ideas were not reserved for his inventiveness. Strong religious ties are not mentioned in the recordings of George's life, and do not appear important to him. He was a progressive in many senses of the word, not only with his inventions, but in his general attitudes regarding business, education and personal relations. George referred to photographers who would not accept progress as "old fogies" (Ackerman, 1930). He designed a 13 month calendar which he spent much of his later life trying to promote as a more efficient alternative to our current calendar system (Ackerman, 1930; Coe, 1973; Compton's NewMedia, 1994; Jenkins, 1975).

George apparently was able to "tinker" during childhood, and he did live in a rural community when the family was located in Waterville, partially fitting one of Colangelo's patterns. The Eastman's residence was in town, however, and not itself a farm (Ackerman, 1930).

Colangelo notes that inventors' creations come about as ways to cut down on time done in chores; this is almost synonymous with what qualities a creation as an invention. Certainly the inventions created by George Eastman were means to reduce equipment, to simplify a process, or to improve the restrictions imposed by an existing process, which does translate to cutting down on effort in a general sense.

Although considered an important pattern by Colangelo, George did not marry, and had no wife to support him. Instead, he surrounded himself with supportive business partners and friends. Col. Strong was the first to fill this role, and Strong was followed by others, including Walter Hubbell (Ackerman, 1930; Jenkins, 1975).

According to Colangelo, inventors tend not to have many outside hobbies, and this appears to be true of Eastman until he reached a level of financial stability where he felt he could place the running of his company into the hands of others, and free himself to pursue other interests.

The final pattern seen in Colangelo's inventor study is that they are strongly independent. This was very much true for George Eastman, and he seemed to prove this trait with everything recorded of his ventures.

George Eastman was an austere, calculating, highly meticulous, determined organizer. When he formulated a goal he achieved it, sparing no effort. He was imaginative and innovative. He sought answers to problems that others accepted, and he created solutions. He was an inventor, a shrewd businessman, and a generous philanthropist whose ideas changed our view of the world and our means to communicate within it.

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